Claims

1. An isolated polypeptide selected from the group consisting of: (a) a polypeptide comprising an amino acid sequence having at least 45% identity to the amino acid sequence of SEQ ID NO:3; (b) a polypeptide comprising the amino acid sequence of SEQ ID NO:3; (c) a polypeptide that consists essentially of the amino acid sequence of SEQ ID NO:3; and (d) a polypeptide comprising at least 200 contiguous amino acids of SEQ ID NO:3.

2. An isolated nucleic acid molecule selected from the group consisting of: (a) a nucleic acid molecule having at least 45% identity to the nucleotide sequence of SEQ ID NO:2; (b) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:2 or a complement thereof; (c) a nucleic acid molecule consisting essentially of the nucleotide sequence of SEQ ID NO:2 or a fragment thereof; and (d) a nucleic acid molecule comprising at least 500 contiguous nucleotides of SEQ ID NO:2.

3. A vector or host cell comprising the isolated nucleic acid molecule of claim 2.

4. A method for screening a compound for effectiveness as an antagonist of a polypeptide of claim 1, the method comprising the steps of:

a) exposing a sample comprising a polypeptide of claim 1 to a compound; and

b) detecting antagonist activity in the sample, wherein said antagonist activity identifies said compound as an effective antagonist of a polypeptide of claim 1.

5. A composition comprising an antagonist compound identified by a method of claim 4.

6. A method for screening an antagonist compound for effectiveness in altering expression of a target nucleic acid molecule of claim 2, said method comprising the steps of:

a) exposing a sample comprising a target nucleic acid molecule of claim 2 to a compound under conditions suitable for the expression of the target nucleic acid molecule;

b) detecting altered expression of the target nucleic acid molecule; and

c) comparing the expression of the target nucleic acid molecule in the presence of the compound and in the absence of the compound, wherein a decrease in expression identifies an antagonist compound effective in altering the expression of the target nucleic acid molecule of claim 2.

7. A composition comprising an antagonist compound identified according to the method of claim 6.

8. A method for the treatment of an individual having need to inhibit a polypeptide of claim 1, said method comprising administering to the individual a therapeutically effective amount of the antagonist of claim 5 or claim 7.

9. A vaccine composition comprising a pharmaceutically acceptable vehicle and an isolated immunogenic polypeptide of claim 1.

10. A method of preventing or treating a microbial infection in a mammal by administering to said mammal a vaccine composition of claim 9.

11. An isolated polypeptide selected from the group consisting of: (a) a polypeptide comprising an amino acid sequence having at least 50% identity to the amino acid sequence SEQ ID NO:15; (b) a polypeptide comprising the amino acid sequence of SEQ ID NO:15; (c) a polypeptide that consists essentially of the amino acid sequence of SEQ ID NO:15; and (d) a polypeptide comprising at least 250 contiguous amino acids of SEQ ID NO:15.

12. An isolated nucleic acid molecule selected from the group consisting of: (a) a nucleic acid molecule having at least 50% identity to the nucleotide sequence of SEQ ID NO:14; (b) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:14 or a complement thereof; (c) a nucleic acid molecule consisting essentially of

the nucleotide sequence of SEQ ID NO:14 or a fragment thereof; and (d) a nucleic acid molecule comprising at least 750 contiguous nucleotides of SEQ ID NO:14.

13. A vector or host cell comprising the isolated nucleic acid molecule of claim 12.

14. A method for screening a compound for effectiveness as an antagonist of a polypeptide of claim 11, the method comprising the steps of:

a) exposing a sample comprising a polypeptide of claim 11 to a compound; and

b) detecting antagonist activity in the sample, wherein said antagonist activity identifies said compound as an effective antagonist of a polypeptide of claim 11.

15. A composition comprising an antagonist compound identified by a method of claim 14.

16. A method for screening an antagonist compound for effectiveness in altering expression of a target nucleic acid molecule of claim 12, said method comprising the steps of:

a) exposing a sample comprising a target nucleic acid molecule of claim 12 to a compound under conditions suitable for the expression of the target nucleic acid molecule;

b) detecting altered expression of the target nucleic acid molecule; and

c) comparing the expression of the target nucleic acid molecule in the presence of the compound and in the absence of the compound, wherein a decrease in expression identifies an antagonist compound effective in altering the expression of the target nucleic acid molecule of claim 12.

17. A composition comprising an antagonist compound identified according to the method of claim 16.

18. A method for the treatment of an individual having need to inhibit a polypeptide of claim 11, said method comprising administering to the individual a therapeutically effective amount of the antagonist of claim 15 or claim 17.

19. A vaccine composition comprising a pharmaceutically acceptable vehicle and an isolated immunogenic polypeptide of claim 11.

20. A method of preventing or treating a microbial infection in a mammal by administering to said mammal a vaccine composition of claim 19.

21. An isolated polypeptide selected from the group consisting of: (a) a polypeptide comprising an amino acid sequence having at least 45% identity to the amino acid sequence SEQ ID NO:18; (b) a polypeptide comprising the amino acid sequence of SEQ ID NO:18; (c) a polypeptide that consists essentially of the amino acid sequence of SEQ ID NO:18; and (d) a polypeptide comprising at least 200 contiguous amino acids of SEQ ID NO:18.

22. An isolated nucleic acid molecule selected from the group consisting of: (a) a nucleic acid molecule having at least 45% identity to the nucleotide sequence of SEQ ID NO:17; (b) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:17 or a complement thereof; (c) a nucleic acid molecule consisting essentially of the nucleotide sequence of SEQ ID NO:17 or a fragment thereof; and (d) a nucleic acid molecule comprising at least 600 contiguous nucleotides of SEQ ID NO:17.

23. A vector or host cell comprising the isolated nucleic acid molecule of claim 22.

24. A method for screening a compound for effectiveness as an antagonist of a polypeptide of claim 21, the method comprising the steps of:

a) exposing a sample comprising a polypeptide of claim 21 to a compound; and

b) detecting antagonist activity in the sample, wherein said antagonist activity identifies said compound as an effective antagonist of a polypeptide of claim 21.

25. A composition comprising an antagonist compound identified by a method of claim 24.

26. A method for screening an antagonist compound for effectiveness in altering expression of a target nucleic acid molecule of claim 22, said method comprising the steps of:

a) exposing a sample comprising a target nucleic acid molecule of claim 22 to a compound under conditions suitable for the expression of the target nucleic acid molecule;

b) detecting altered expression of the target nucleic acid molecule; and

c) comparing the expression of the target nucleic acid molecule in the presence of the compound and in the absence of the compound, wherein a decrease in expression identifies an antagonist compound effective in altering the expression of the target nucleic acid molecule of claim 22.

27. A composition comprising an antagonist compound identified according to the method of claim 26.

28. A method for the treatment of an individual having need to inhibit a polypeptide of claim 21, said method comprising administering to the individual a therapeutically effective amount of the antagonist of claim 25 or claim 27.

29. A vaccine composition comprising a pharmaceutically acceptable vehicle and an isolated immunogenic polypeptide of claim 21.

30. A method of preventing or treating a microbial infection in a mammal by administering to said mammal a vaccine composition of claim 29.

31. An isolated polypeptide selected from the group consisting of: (a) a polypeptide comprising an amino acid sequence having at least 45% identity to the amino acid sequence SEQ ID NO:30; (b) a polypeptide comprising the amino acid sequence of SEQ ID NO:30; (c) a polypeptide that consists essentially of the amino acid

sequence of SEQ ID NO:30; and (d) a polypeptide comprising at least 90 contiguous amino acids of SEQ ID NO:30.

32. An isolated nucleic acid molecule selected from the group consisting of: (a) a nucleic acid molecule having at least 45% identity to the nucleotide sequence of SEQ ID NO:29; (b) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:29 or a complement thereof; (c) a nucleic acid molecule consisting essentially of the nucleotide sequence of SEQ ID NO:29 or a fragment thereof; and (d) a nucleic acid molecule comprising at least 300 contiguous nucleotides of SEQ ID NO:29.

33. A vector or host cell comprising the isolated nucleic acid molecule of claim 32.

34. A method for screening a compound for effectiveness as an antagonist of a polypeptide of claim 31, the method comprising the steps of:

a) exposing a sample comprising a polypeptide of claim 31 to a compound; and

b) detecting antagonist activity in the sample, wherein said antagonist activity identifies said compound as an effective antagonist of a polypeptide of claim 31.

35. A composition comprising an antagonist compound identified by a method of claim 34.

36. A method for screening an antagonist compound for effectiveness in altering expression of a target nucleic acid molecule of claim 32, said method comprising the steps of:

a) exposing a sample comprising a target nucleic acid molecule of claim 32 to a compound under conditions suitable for the expression of the target nucleic acid molecule;

b) detecting altered expression of the target nucleic acid molecule; and

c) comparing the expression of the target nucleic acid molecule in the presence of the compound and in the absence of the compound, wherein a decrease in

expression identifies an antagonist compound effective in altering the expression of the target nucleic acid molecule of claim 32.

37. A composition comprising an antagonist compound identified according to the method of claim 36.

38. A method for the treatment of an individual having need to inhibit a polypeptide of claim 31, said method comprising administering to the individual a therapeutically effective amount of the antagonist of claim 35 or claim 37.

39. A vaccine composition comprising a pharmaceutically acceptable vehicle and an isolated immunogenic polypeptide of claim 31.

40. A method of preventing or treating a microbial infection in a mammal by administering to said mammal a vaccine composition of claim 39.

41. An isolated polypeptide selected from the group consisting of: (a) a polypeptide comprising an amino acid sequence having at least 55% identity to the amino acid sequence SEQ ID NO:6; (b) a polypeptide comprising the amino acid sequence of SEQ ID NO:6; (c) a polypeptide that consists essentially of the amino acid sequence of SEQ ID NO:6; and (d) a polypeptide comprising at least 160 contiguous amino acids of SEQ ID NO:6.

42. An isolated nucleic acid molecule selected from the group consisting of: (a) a nucleic acid molecule having at least 55% identity to the nucleotide sequence of SEQ ID NO:5; (b) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:5 or a complement thereof; (c) a nucleic acid molecule consisting essentially of the nucleotide sequence of SEQ ID NO:5 or a fragment thereof; and (d) a nucleic acid molecule comprising at least 500 contiguous nucleotides of SEQ ID NO:5.

43. A vector or host cell comprising the isolated nucleic acid molecule of claim 42.

44. A method for screening a compound for effectiveness as an antagonist of a polypeptide of claim 41, the method comprising the steps of:

a) exposing a sample comprising a polypeptide of claim 41 to a compound; and

b) detecting antagonist activity in the sample, wherein said antagonist activity identifies said compound as an effective antagonist of a polypeptide of claim 41.

45. A composition comprising an antagonist compound identified by a method of claim 44.

46. A method for screening an antagonist compound for effectiveness in altering expression of a target nucleic acid molecule of claim 42, said method comprising the steps of:

a) exposing a sample comprising a target nucleic acid molecule of claim 42 to a compound under conditions suitable for the expression of the target nucleic acid molecule;

b) detecting altered expression of the target nucleic acid molecule; and

c) comparing the expression of the target nucleic acid molecule in the presence of the compound and in the absence of the compound, wherein a decrease in expression identifies an antagonist compound effective in altering the expression of the target nucleic acid molecule of claim 42.

47. A composition comprising an antagonist compound identified according to the method of claim 46.

48. A method for the treatment of an individual having need to inhibit a polypeptide of claim 41, said method comprising administering to the individual a therapeutically effective amount of the antagonist of claim 45 or claim 47.

49. A vaccine composition comprising a pharmaceutically acceptable vehicle and an isolated immunogenic polypeptide of claim 41.

50. A method of preventing or treating a microbial infection in a mammal by administering to said mammal a vaccine composition of claim 49.

51. An isolated polypeptide selected from the group consisting of: (a) a polypeptide comprising an amino acid sequence having at least 45% identity to the amino acid sequence SEQ ID NO:9; (b) a polypeptide comprising the amino acid sequence of SEQ ID NO:9; (c) a polypeptide that consists essentially of the amino acid sequence of SEQ ID NO:9; and (d) a polypeptide comprising at least 250 contiguous amino acids of SEQ ID NO:9.

52. An isolated nucleic acid molecule selected from the group consisting of: (a) a nucleic acid molecule having at least 45% identity to the nucleotide sequence of SEQ ID NO:8; (b) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:8 or a complement thereof; (c) a nucleic acid molecule consisting essentially of the nucleotide sequence of SEQ ID NO:8 or a fragment thereof; and (d) a nucleic acid molecule comprising at least 800 contiguous nucleotides of SEQ ID NO:8.

53. A vector or host cell comprising the isolated nucleic acid molecule of claim 52.

54. A method for screening a compound for effectiveness as an antagonist of a polypeptide of claim 51, the method comprising the steps of:

a) exposing a sample comprising a polypeptide of claim 51 to a compound; and

b) detecting antagonist activity in the sample, wherein said antagonist activity identifies said compound as an effective antagonist of a polypeptide of claim 51.

55. A composition comprising an antagonist compound identified by a method of claim 54.

56. A method for screening an antagonist compound for effectiveness in altering expression of a target nucleic acid molecule of claim 52, said method comprising the steps of:

a) exposing a sample comprising a target nucleic acid molecule of claim 52 to a compound under conditions suitable for the expression of the target nucleic acid molecule;

b) detecting altered expression of the target nucleic acid molecule; and

c) comparing the expression of the target nucleic acid molecule in the presence of the compound and in the absence of the compound, wherein a decrease in expression identifies an antagonist compound effective in altering the expression of the target nucleic acid molecule of claim 52.

57. A composition comprising an antagonist compound identified according to the method of claim 56.

58. A method for the treatment of an individual having need to inhibit a polypeptide of claim 51, said method comprising administering to the individual a therapeutically effective amount of the antagonist of claim 55 or claim 57.

59. A vaccine composition comprising a pharmaceutically acceptable vehicle and an isolated immunogenic polypeptide of claim 51.

60. A method of preventing or treating a microbial infection in a mammal by administering to said mammal a vaccine composition of claim 59.

61. An isolated polypeptide selected from the group consisting of: (a) a polypeptide comprising an amino acid sequence having at least 45% identity to the amino acid sequence SEQ ID NO:12; (b) a polypeptide comprising the amino acid sequence of SEQ ID NO:12; (c) a polypeptide that consists essentially of the amino acid sequence of SEQ ID NO:12; and (d) a polypeptide comprising at least 200 contiguous amino acids of SEQ ID NO:12.

62. An isolated nucleic acid molecule selected from the group consisting of: (a) a nucleic acid molecule having at least 45% identity to the nucleotide sequence of SEQ ID NO:11; (b) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:11 or a complement thereof; (c) a nucleic acid molecule consisting essentially of the nucleotide sequence of SEQ ID NO:11 or a fragment thereof; and (d) a nucleic acid molecule comprising at least 800 contiguous nucleotides of SEQ ID NO:11.

63. A vector or host cell comprising the isolated nucleic acid molecule of claim 62.

64. A method for screening a compound for effectiveness as an antagonist of a polypeptide of claim 61, the method comprising the steps of:

a) exposing a sample comprising a polypeptide of claim 61 to a compound; and

b) detecting antagonist activity in the sample, wherein said antagonist activity identifies said compound as an effective antagonist of a polypeptide of claim 61.

65. A composition comprising an antagonist compound identified by a method of claim 64.

66. A method for screening an antagonist compound for effectiveness in altering expression of a target nucleic acid molecule of claim 62, said method comprising the steps of:

a) exposing a sample comprising a target nucleic acid molecule of claim 62 to a compound under conditions suitable for the expression of the target nucleic acid molecule;

b) detecting altered expression of the target nucleic acid molecule; and

c) comparing the expression of the target nucleic acid molecule in the presence of the compound and in the absence of the compound, wherein a decrease in expression identifies an antagonist compound effective in altering the expression of the target nucleic acid molecule of claim 62.

67. A composition comprising an antagonist compound identified according to the method of claim 66.

68. A method for the treatment of an individual having need to inhibit a polypeptide of claim 61, said method comprising administering to the individual a therapeutically effective amount of the antagonist of claim 65 or claim 67.

69. A vaccine composition comprising a pharmaceutically acceptable vehicle and an isolated immunogenic polypeptide of claim 61.

70. A method of preventing or treating a microbial infection in a mammal by administering to said mammal a vaccine composition of claim 69.

71. An isolated polypeptide selected from the group consisting of: (a) a polypeptide comprising an amino acid sequence having at least 45% identity to the amino acid sequence SEQ ID NO:21; (b) a polypeptide comprising the amino acid sequence of SEQ ID NO:21; (c) a polypeptide that consists essentially of the amino acid sequence of SEQ ID NO:21; and (d) a polypeptide comprising at least 150 contiguous amino acids of SEQ ID NO:21.

72. An isolated nucleic acid molecule selected from the group consisting of: (a) a nucleic acid molecule having at least 45% identity to the nucleotide sequence of SEQ ID NO:20; (b) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:20 or a complement thereof; (c) a nucleic acid molecule consisting essentially of the nucleotide sequence of SEQ ID NO:20 or a fragment thereof; and (d) a nucleic acid molecule comprising at least 400 contiguous nucleotides of SEQ ID NO:20.

73. A vector or host cell comprising the isolated nucleic acid molecule of claim 72.

74. A method for screening a compound for effectiveness as an antagonist of a polypeptide of claim 71, the method comprising the steps of:

a) exposing a sample comprising a polypeptide of claim 71 to a compound; and

b) detecting antagonist activity in the sample, wherein said antagonist activity identifies said compound as an effective antagonist of a polypeptide of claim 71.

75. A composition comprising an antagonist compound identified by a method of claim 74.

76. A method for screening an antagonist compound for effectiveness in altering expression of a target nucleic acid molecule of claim 72, said method comprising the steps of:

a) exposing a sample comprising a target nucleic acid molecule of claim 72 to a compound under conditions suitable for the expression of the target nucleic acid molecule;

b) detecting altered expression of the target nucleic acid molecule; and

c) comparing the expression of the target nucleic acid molecule in the presence of the compound and in the absence of the compound, wherein a decrease in expression identifies an antagonist compound effective in altering the expression of the target nucleic acid molecule of claim 72.

77. A composition comprising an antagonist compound identified according to the method of claim 76.

78. A method for the treatment of an individual having need to inhibit a polypeptide of claim 71, said method comprising administering to the individual a therapeutically effective amount of the antagonist of claim 75 or claim 77.

79. A vaccine composition comprising a pharmaceutically acceptable vehicle and an isolated immunogenic polypeptide of claim 71.

80. A method of preventing or treating a microbial infection in a mammal by administering to said mammal a vaccine composition of claim 79.

81. An isolated polypeptide selected from the group consisting of: (a) a polypeptide comprising an amino acid sequence having at least 45% identity to the amino acid sequence SEQ ID NO:24; (b) a polypeptide comprising the amino acid sequence of SEQ ID NO:24; (c) a polypeptide that consists essentially of the amino acid sequence of SEQ ID NO:24; and (d) a polypeptide comprising at least 200 contiguous amino acids of SEQ ID NO:24.

82. An isolated nucleic acid molecule selected from the group consisting of: (a) a nucleic acid molecule having at least 45% identity to the nucleotide sequence of SEQ ID NO:23; (b) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:23 or a complement thereof; (c) a nucleic acid molecule consisting essentially of the nucleotide sequence of SEQ ID NO:23 or a fragment thereof; and (d) a nucleic acid molecule comprising at least 600 contiguous nucleotides of SEQ ID NO:23.

83. A vector or host cell comprising the isolated nucleic acid molecule of claim 82.

84. A method for screening a compound for effectiveness as an antagonist of a polypeptide of claim 81, the method comprising the steps of:

a) exposing a sample comprising a polypeptide of claim 81 to a compound; and

b) detecting antagonist activity in the sample, wherein said antagonist activity identifies said compound as an effective antagonist of a polypeptide of claim 81.

85. A composition comprising an antagonist compound identified by a method of claim 84.

86. A method for screening an antagonist compound for effectiveness in altering expression of a target nucleic acid molecule of claim 82, said method comprising the steps of:

a) exposing a sample comprising a target nucleic acid molecule of claim 82 to a compound under conditions suitable for the expression of the target nucleic acid molecule;

b) detecting altered expression of the target nucleic acid molecule; and

c) comparing the expression of the target nucleic acid molecule in the presence of the compound and in the absence of the compound, wherein a decrease in expression identifies an antagonist compound effective in altering the expression of the target nucleic acid molecule of claim 82.

87. A composition comprising an antagonist compound identified according to the method of claim 86.

88. A method for the treatment of an individual having need to inhibit a polypeptide of claim 81, said method comprising administering to the individual a therapeutically effective amount of the antagonist of claim 85 or claim 87.

89. A vaccine composition comprising a pharmaceutically acceptable vehicle and an isolated immunogenic polypeptide of claim 81.

90. A method of preventing or treating a microbial infection in a mammal by administering to said mammal a vaccine composition of claim 89.

91. An isolated polypeptide selected from the group consisting of: (a) a polypeptide comprising an amino acid sequence having at least 45% identity to the amino acid sequence SEQ ID NO:27; (b) a polypeptide comprising the amino acid sequence of SEQ ID NO:27; (c) a polypeptide that consists essentially of the amino acid sequence of SEQ ID NO:27; and (d) a polypeptide comprising at least 400 contiguous amino acids of SEQ ID NO:27.

92. An isolated nucleic acid molecule selected from the group consisting of: (a) a nucleic acid molecule having at least 45% identity to the nucleotide sequence of SEQ ID NO:26; (b) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:26 or a complement thereof; (c) a nucleic acid molecule consisting essentially of

the nucleotide sequence of SEQ ID NO:26 or a fragment thereof; and (d) a nucleic acid molecule comprising at least 140 contiguous nucleotides of SEQ ID NO:26.

93. A vector or host cell comprising the isolated nucleic acid molecule of claim 92.

94. A method for screening a compound for effectiveness as an antagonist of a polypeptide of claim 91, the method comprising the steps of:

a) exposing a sample comprising a polypeptide of claim 91 to a compound; and

b) detecting antagonist activity in the sample, wherein said antagonist activity identifies said compound as an effective antagonist of a polypeptide of claim 91.

95. A composition comprising an antagonist compound identified by a method of claim 94.

96. A method for screening an antagonist compound for effectiveness in altering expression of a target nucleic acid molecule of claim 92, said method comprising the steps of:

a) exposing a sample comprising a target nucleic acid molecule of claim 92 to a compound under conditions suitable for the expression of the target nucleic acid molecule;

b) detecting altered expression of the target nucleic acid molecule; and

c) comparing the expression of the target nucleic acid molecule in the presence of the compound and in the absence of the compound, wherein a decrease in expression identifies an antagonist compound effective in altering the expression of the target nucleic acid molecule of claim 92.

97. A composition comprising an antagonist compound identified according to the method of claim 96.

98. A method for the treatment of an individual having need to inhibit a polypeptide of claim 91, said method comprising administering to the individual a therapeutically effective amount of the antagonist of claim 95 or claim 97.

99. A vaccine composition comprising a pharmaceutically acceptable vehicle and an isolated immunogenic polypeptide of claim 91.

100. A method of preventing or treating a microbial infection in a mammal by administering to said mammal a vaccine composition of claim 99.